

5083256



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D6104-007
Job Sheet 179253



Part No: D6104-007

Job Qty: 12 ea

Part Name: Round Billet, 17-4



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/15/18

Job Tracking No:

Due Date: 6/29/18

Created By: Chantal Lavoie

Type: Stock

Description:

Note: DWG REV B

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	12 pcs		6/29/18	0.00	0.00	Purchasing		AT 18/06/22
110	Packaging	12 pcs		6/29/18	0.00	0.00	Packaging2		AT 18/06/22
120	QC	12 pcs		6/29/18	0.00	0.00	QC18		18-06-26/AT
130	Packaging	12 pcs		6/29/18	0.00	0.00	Packaging3-2		18/06/28
140	QC21-SA	12 Ea		6/29/18	0.00	0.00	QC21		DAS 21 9-39 JUN 28 2018

Part Op 100 - Issue P/O: 40217 b) Ø4.50" x 5.10" long
 Descriptions: 110 - Ensure material certification is attached
 120 - Ensure Material certification comply to Dwg D6104

JUN 15 2018

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6104-007P	17-4 SS Roundbar 4.50"Od	12 pcs (1 ea)	100-Purchasing	5083250

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6104-007P	12	0	0

Part Specifications

Specifications could not be found.

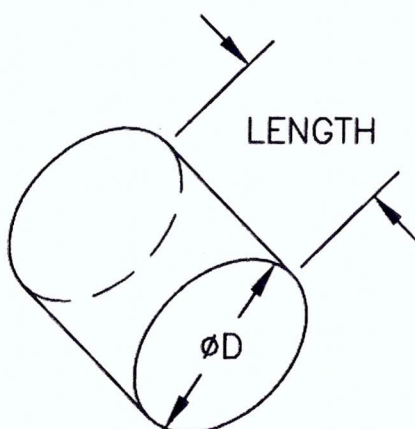
Plex 6/15/18 9:25 AM dart.lavoie.chantal



DESIGN <i>RF</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO040217

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO040217

PO Date: 6/15/18

Due Date: 6/29/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED
JUN 15 2018

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	179252	D6104-003P		17-4 SS Roundbar 3.25"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$26.70/pcs	\$320.40
2	179253	D6104-007P		17-4 SS Roundbar 4.50"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$68.53/pcs	\$822.36
3	179254	D6104-009P		17-4 SS Roundbar 5.25"Od	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$111.7167/pcs	\$1,340.60
4	179256	D6104-011P		17-4 SS Roundbar 6.50"OD	Firmed	6/29/18	12 pcs	0 pcs	12 pcs	\$128.20/pcs	\$1,538.40
Grand Total:										\$4,021.76	

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/15/18 1:08 PM dart.lavoie.chantal

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3627835

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 20-JUN-18	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3627835-2	

Shipment Details	Final Destination Branch - TOR
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Order No	Line No	Item No	Description				
5175328	2	14998.MO	4.5000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
40217		YOUR ITEM NUMBER: D6104-007		9.00 PCS		9.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill/Source	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
121906266	NORTH AMERICAN STAINLESS			9			212.7837



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Page 2 of 2

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:



Name:

SUE KALOUS

JUN 20 2018



North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 381256 13
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 2/13/2018 Page: 1

Steel: 630 (17-4)

Finish: HR

Corrosion:

Red Ratio: 3.7 :1

Your Order: 38993

NAS Order: PN 0087808 08 Heat Treat Code: 44,866

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/16, MACRO OK, AMS 5643U
ASTM A564/13, AMS 2303F, ASME SA564-07, ASTM F899/12b
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
UT per API6A PSL3, ASTM A388-S1 criteria, UT passed
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION



Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BJ2787 3		4.5000		1,375	144.00	11	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/14a

NAS Heat	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %
(637K) DAS 9 9-89	US	.015	.269	.04	15.13	3.23	.79	.015	.027	4.16
		P %	S %	SI %	TA %	TI %				
		.019	.0153	.58	.0050	.0035				

MECHANICAL PROPERTIES

Product Id	l o c a l	HB No.	Grain No.	Ferrite %	TS-900CAP KSI	YS-900CAP KSI	El-900CAP % 4D	RA-900CAP %	RC-900CAP No.	FREQ. No.
BJ2787 3	R L	320.0	7.0	.21	192.95	172.89	12.85	45.10	43.0	.09

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

KRIS LARK

2/13/2018



North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 381256 13 Mail To: Ship To: Date: 2/13/2018 Page: 2
Customer: 007209 001 CASTLE METALS CASTLE METALS Steel: 630(17-4)
2150 ARGENTIA ROAD 2150 ARGENTIA ROAD Finish: HR
MISSISSAUGA, ON L5N 2K7 MISSISSAUGA, ON L5N 2K7 Corrosion:
Your Order: 38993 NAS Order: PN 0087808 08 Heat Treat Code: 44,866 Red Ratio: 3.7 :1

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/16, MACRO OK, AMS 5643U
ASTM A564/13, AMS 2303F, ASME SA564-07, ASTM F899/12b
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. and air cooled to RT
UT per API6A PSL3, ASTM A388-S1 criteria, UT passed
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BJ2787 3		4.5000		1,375	144.00	11	1	

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan) Chemical Analysis per ASTM A751/14a

NAS Heat	CM
637K	US

MECHANICAL PROPERTIES

Product Id	l o c a l i d e n t i f i c a t i o n	SEV. No.
BJ2787 3	R L	.07

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

KRIS LARK

2/13/2018

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A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3627835

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 20-JUN-18	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3627835-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No	Line No	Item No	Description				
5175328	3	14998.MO	4.5000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com				
Purchase Order No		Part Number		Ordered Qty		Invoice Qty	
40217		YOUR ITEM NUMBER: D6104-007		3.00 PCS		3.00 PCS	
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill/Source	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
121908365	VIRAJ - USA INC			3			70.9279



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A. M. Castle & Co.

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Page 2 of 2

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:



Date:

Name:

SUE KALOUS

JUN 20 2018

VIRAJ PROFILES LTD.



Regi & Mkt off: G-33 & 34, MIDC, Industrial Area, Tarapur, Thane (Dist), Maharashtra, INDIA - 401506, E-Mail: sales@viraj.com
Works: SURVEY No- 114, 119 & 120, VILL. Mahagaon, Tal: Palgar, Dist: Thane-401501, MAHARASTRA, INDIA, vielqc@viraj.com

Revised July 29, 2015

TEST CERTIFICATE

CUSTOMER A.M. CASTLE 1420 KENSINGTON ROAD, SUITE 220 OAK BROOK, IL, 60523	ORDER NO 24369	PACKING LIST NO 62/989398/15	INSPECTION NO 100005208819	DATE 04.05.2015
			GRADE AISI 630	HEAT No 35864

BUNDLE NO :
1100340739

Acceptable

for 17-4 PH

14/6/22

DESCRIPTION

STAINLESS STEEL BRIGHT BARS

ROUGH & PEELED

SIZE	SHAPE	TOLERANCE	LENGTH	PIECES	WEIGHT
4.5000"	ROUND	DIN 1013	12' - 16'	1	750.000 LB

CHEMICAL ANALYSIS

%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Cu	%Mo	%Co	%N2
0.0480	0.550	0.400	0.0040	0.0190	15.180	4.630	3.120	0.010	0.040	0.0250

TEST RESULTS

0.2% yield strength ksi	Tensile Strength ksi	Elongation %	Reduction Of Area %	Hardness BHN	Grain Size NOS
130.0	144.0	18.0	62.0	295.0	6.0

SPECIFICATION:

MATERIAL CONFIRMS TO ASTM A 564-10 COND A, AMC 3174-02 R 37, AMS 2303F, AMS 5643, ASME SA 564, ASTM A564, AISI 630, UNS S17400.
CERTIFIED AS PER EN10204 - 3.1. %Delta Ferrite-8.122
Product Frequency and Severity ratings as per AMS 2303F are 0.78 and 0.71.

REMARKS

MATERIAL IS FREE FROM MERCURY CONTAMINATION, FREE FROM WELD OR WELD REPAIRS. MICRO-FREE FROM CONTINUOUS CARBIDE NETWORK ON GRAIN BOUNDARIES. MACRO:GOOD.MINIMUM SOLUTION ANNEALING TEMPERATURE 1050C,SOAKING TIME 1hr/inch., WATER QUENCHED. WE CONFIRM THAT THE MATERIAL HAS BEEN TESTED AND FOUND TO BE FREE FROM RADIOACTIVE CONTAMINATION.MELT SOURCE:AOD. MELT & MANUFACTURED: INDIA

We hereby certify that the material described above has been tested and complies with the terms of order/contract.



WORKS INSPECTOR
K R K MURTHY

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 06104-007
 DATE: 18/06/22

PO / BATCH NO.: P0040217/5083256

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 12
 QUANTITY INSPECTED: 12
 QUANTITY REJECTED: 0

THICKNESS ORDERED: ~~5.0~~ 4.5"
 THICKNESS RECEIVED: 4.5"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒	
CORRECT FINISH	☒	N	
CORROSION	Y	☒	
CORRECT GRAIN DIRECTION	☒	N	
CORRECT MATERIAL PER M-DRAWING	☒	N	<u>AMS 5643 (2x) AISI 630 (3x)</u>
CORRECT THICKNESS	☒	N	
PHOTO REQUIRED	Y	☒	
CORRECT REF # TO LINK CERT	☒	N	<u>HT: 637K (2x) HT: 35864 (3x)</u>
CORRECT MATERIAL IDENTIFICATION	☒	N	
CORRECT M# ON THE MATERIAL	☒	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D	WEBSTER
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>At</u> DATE: <u>18/06/22</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in